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## The Need of the Nation to Conserve Energy

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### Introduction

In 1975, Congress passed the Energy Policy and Conservation Act (EPCA) and established fuel economy standards for new passenger cars starting with model year 1978.<sup>1</sup> Congress instructed the Secretary of Transportation to “consider technological feasibility, economic practicability, the effect of other motor vehicle standards of the Government on fuel economy, and the need of the United States to conserve energy” and to consult with the Secretary of Energy and the Administrator of the Environmental Protection Administration.<sup>2</sup>

In setting motor vehicle standards, the Department of Transportation has stated that the need of the United States to conserve energy “requires consideration of the consumer cost, national balance of payments, environmental, and foreign policy implications of our need for large quantities of petroleum, especially imported petroleum.”<sup>3</sup>

The Department of Energy was created to achieve the “effective management of energy functions of the Federal Government, including consultation with the heads of other Federal departments and agencies in order to encourage them to establish and observe policies consistent with a coordinated energy policy.”<sup>4</sup> Given this context and DOE’s experience in energy research and energy data collection through the Energy Information Administration, DOE is particularly well suited to advise the Department of Transportation on the current status of petroleum consumption in the United States, including the amount of petroleum that comes from foreign sources.

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<sup>1</sup> See Pub. L. 94-163, § 301 (amending the Motor Vehicle Information and Cost Savings Act).

<sup>2</sup> 49 U.S.C. § 32902(b)(1) (imposing consultation requirement) and (f) (identifying factors to be considered).

<sup>3</sup> 42 Fed. Reg. 63184, 63188 (Dec. 15, 1977).

<sup>4</sup> Department of Energy Organization Act, §102(2); 42 U.S.C. § 7112.



The Department of Energy believes that the “need of the nation to conserve energy,” particularly as regards imported petroleum, is very different today than it was in the late 1970s. The energy system in the United States has changed substantially since EPCA established fuel economy standards, and DOE believes many of these changes will continue.

### Changes in Energy Production

The 1970s saw a dramatic upheaval in energy production in the United States, particularly with respect to oil production. Through 1970, domestic petroleum production increased with a few minor exceptions. Starting in 1970, however, production began to rapidly decline: domestic petroleum production peaked in 1970 at 11.3 million barrels a day and by 1975, had declined by over 10 percent to 10 million barrels a day.<sup>5</sup>

As domestic production declined, petroleum imports rose dramatically. In 1970, the United States imported 3.4 million barrels of petroleum per day, but by 1975 imports had increased to 6.1 million barrels per day.<sup>6</sup> As a result of increasing consumption and decreasing domestic production, net imports increased as well. In 1950, net imports of petroleum were only about 8.4 percent of total petroleum products supplied, but increased to 21.5 percent in 1970 and further increased to 35.8 percent by 1975.<sup>7</sup>

Another factor driving a need to conserve oil in the 1970s was electricity generation. Over 15 percent of total electricity generation was produced by petroleum in 1975.<sup>8</sup> High oil prices did not just cause challenges for transportation; because oil played a sizable role in electricity generation, high oil prices also put upward pressure on electricity rates.

Today these trends have substantially changed, as has the calculus for the need to reduce petroleum consumption. After 1975, domestic petroleum production declined for 33 years until 2008. Since 2008, however, domestic petroleum production has more than doubled, increasing from 6.8 million barrels a day to over 14.2 million barrels a day on average for the first 4 months of 2018.<sup>9</sup>

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<sup>5</sup> U.S. Energy Information Administration (EIA). *Monthly Energy Review (MER) Table 3.1 Petroleum Overview*. Washington DC: EIA, 2018. <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

<sup>6</sup> U.S. Energy Information Administration (EIA). *Monthly Energy Review (MER) Table 3.3a Petroleum Trade Overview*. Washington DC: EIA, 2018. <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

<sup>7</sup> Ibid.

<sup>8</sup> U.S. Energy Information Administration (EIA). *Monthly Energy Review (MER) Table 7.2a Electricity Net Generation Total: All Sectors*. Washington DC: EIA, 2018. <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

<sup>9</sup> U.S. Energy Information Administration (EIA). *Monthly Energy Review (MER) Table 3.1 Petroleum Overview*. Washington DC: EIA, 2018. <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

This dramatic increase in domestic oil production has led to substantially lower net petroleum imports. As recently as 2005, the U.S. imported (on a net basis) more than 60 percent of the petroleum we consumed. By 2017, however, net imports had fallen to 18.8 percent, and so far in 2018 we are on pace to only import 16 percent of the petroleum we consume.<sup>10</sup> This is a substantial decline from importing over 35 percent in 1975.

Electricity generation has changed substantially as well since the 1970s. Unlike 1975, when petroleum generated 15 percent of electricity in the United States, today petroleum generates a mere 1.1 percent of total electricity generation.<sup>11</sup>

As a result of the above factors, the United States is in a much improved position today with respect to energy production and imports than it was in the 1970s.

### **Better Understanding of Economics and Technology of Oil Production**

The intervening forty years since the late 1970s have also taught us much about our domestic oil resources. For example, in 1975 proved oil reserves in the United States totaled 31.8 billion barrels.<sup>12</sup> From 1975 through 2016, however, domestic oil production totaled 95.6 billion barrels.<sup>13</sup> Despite producing three times our proven reserves from 1977 through 2016, our proved oil reserves total 32.8 billion barrels as of 2016.<sup>14</sup>

Technology and production techniques change over time, enabling the production of oil and natural gas resources that were uneconomical and even impossible two decades ago. This affects the calculus of the need to reduce petroleum consumption, giving the United States more flexibility than in the past to use our oil resources with less concern that there will not be more oil resources to produce once we produce today's proved oil resources.

Due to a variety of factors, changes in petroleum consumption and prices now have a smaller effect on U.S. GDP in the past. In addition, domestic petroleum supply can now respond more rapidly to price increases, which mitigates the effect of shocks to the oil supply on the U.S. economy.

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<sup>10</sup> Ibid.

<sup>11</sup> U.S. Energy Information Administration (EIA). *Monthly Energy Review (MER) Table 7.2a Electricity Net Generation Total: All Sectors*. Washington DC: EIA, 2018.  
<https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf>.

<sup>12</sup> U.S. Energy Information Administration. *US Crude Oil Proved Reserves*. 2018.  
[https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR01NUS\\_1&f=A](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR01NUS_1&f=A).

<sup>13</sup> U.S. Energy Information Administration. *US Crude Oil Estimated Production from Reserves*. 2018.  
[https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR10NUS\\_1&f=A](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR10NUS_1&f=A).

<sup>14</sup> U.S. Energy Information Administration. *US Crude Oil Proved Reserves*, 2018.  
[https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR01NUS\\_1&f=A](https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCRR01NUS_1&f=A).

Recent research suggests that, due to changes in the U.S. economy and the world market for oil (along with the development of more sophisticated modeling techniques), short-run world oil demand is more elastic than previously projected.<sup>15</sup> These changes, which include increased economic resilience, increased production of natural gas, and the development of biofuels, have shrunk the scope of potential U.S. GDP losses as a result of unanticipated oil supply disruptions. This improved resilience affects the nation's need for large quantities of petroleum, especially imported petroleum, which in turn affects the need of the nation to conserve energy.

### **DOE Believes in the Value of Conserving Energy**

Today, the United States is much better positioned with respect to oil production than in the 1970s. Our oil production is increasing and imports are decreasing, we no longer use much oil for electricity generation, and our economy is less vulnerable to rapid petroleum price increases.

That said, the Department of Energy believes in the continued need to use energy wisely. We invest billions of dollars annually in energy research to use energy even more wisely in the future. In the area of transportation, DOE's Office of Energy Efficiency and Renewable Energy will spend over \$674 million in FY2018 to support wise energy use in the future. For example, we are researching next generation battery technologies, fuel cell and hydrogen technologies, bioenergy options, lightweight material options, as well as using high performing computing to better optimize transportation. In the future, better battery technology for electric vehicles could lead to substantially less oil consumption in the United States.

The Department of Energy also believes in the value of preserving competition and consumer choice.<sup>16</sup> To that end, DOE remains committed to investing in long-term research and development that have a greater potential to provide welfare enhancing options for domestic manufacturers and consumers. This commitment is reinforced through the components of DOE's research portfolio that seek to reduce the costs of new, efficient transportation technologies.

### **Conclusion**

The nation's need for large quantities of imported petroleum is substantially different today than in the 1970s, as is the need of the nation to conserve energy. Instead of declining oil production and oil reserves, our oil production is increasing and is expected to increase in the future.

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<sup>15</sup> Krupnick, Alan, Richard Morgenstern, Nathan Balke, Stephen P.A. Brown, Ana Maria Herrera, and Shashank Mohan. "Oil Supply Shocks, US Gross Domestic Product, and the Oil Security Premium." Resources for the Future, November 2017. November 2017. Accessed July 2, 2018. <http://www.rff.org/files/document/file/RFF-Rpt-OilSecurity.pdf>.

<sup>16</sup> Department of Energy Organization Act, Title II sec 203(a)(7)

Additionally, U.S. GDP is less vulnerable to rapid increases in petroleum prices caused by supply disruptions. DOE continues to believe in the need to use energy wisely, and to do so in a way that preserves options for American families and businesses.